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GB 1476848  
GB 1471866  
GB 1292712  
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(54) Improvements relating to coin-operated gaming or amusement machines

(57) A "fruit" machine has drums or reels (1, 2, 3) which can be "nudged" i.e., indexed one or more symbol spaces, in the hope of bringing up a winning combination. The proposed feature allows reverse nudging as an alternative to forward nudging, i.e.,

where the drum moves in the same direction as it is spun. The feature may be available at various points in the game, not necessarily after the drums have spun, and may constitute a complete game. The reverse movement is obtainable by a reversible motor (8) or by means separate from the drum spinning motor, such as solenoids (17) or an extra motor (20) and suitable clutches (22).

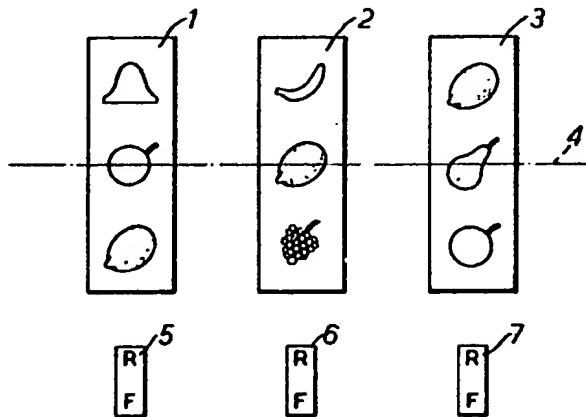


FIG. 1.

The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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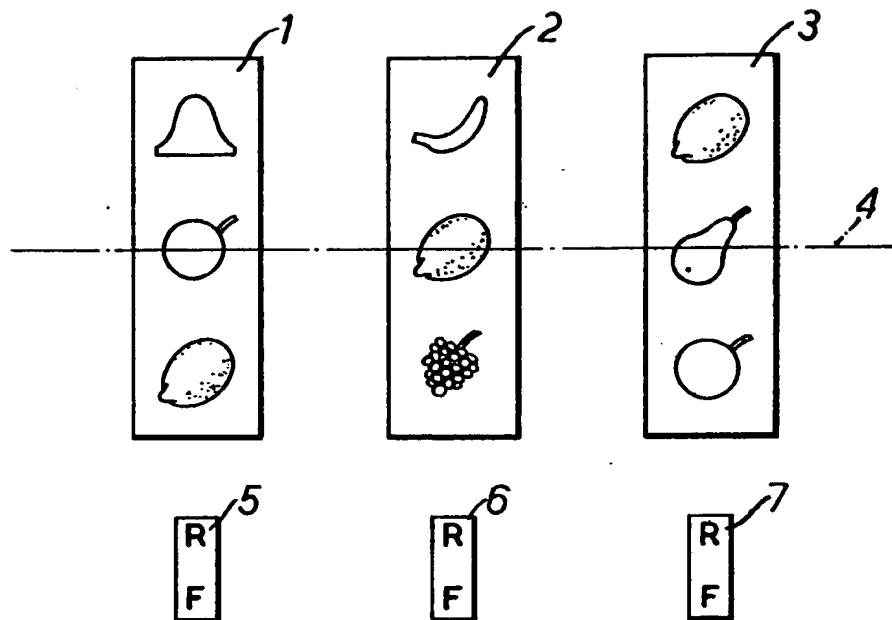


FIG. 1.

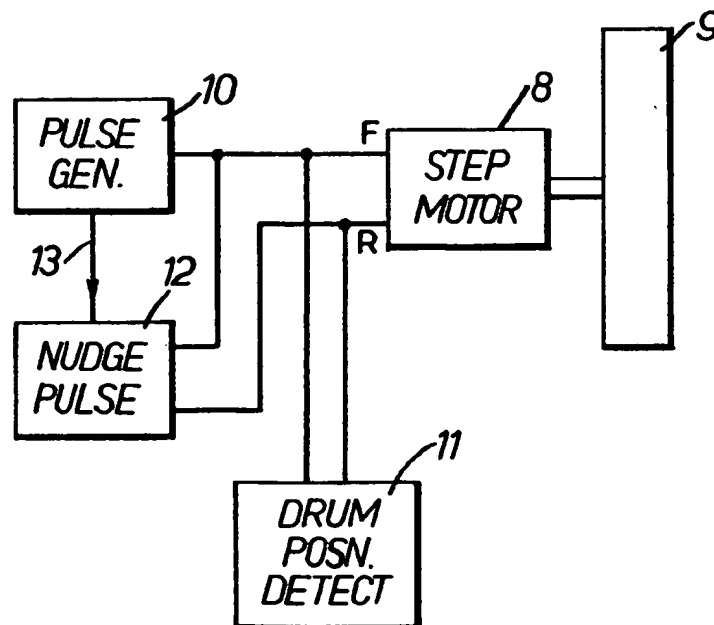


FIG. 2.

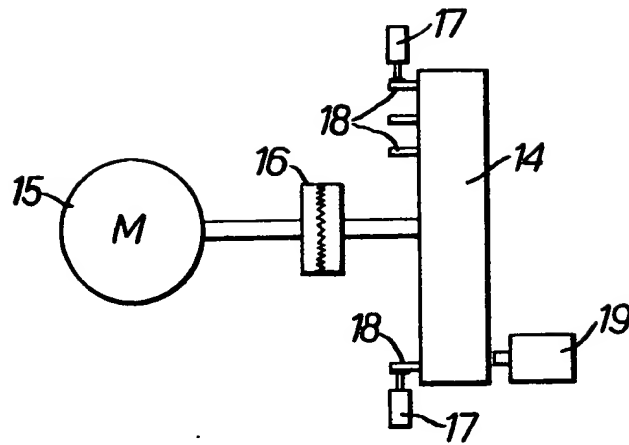


FIG. 3.

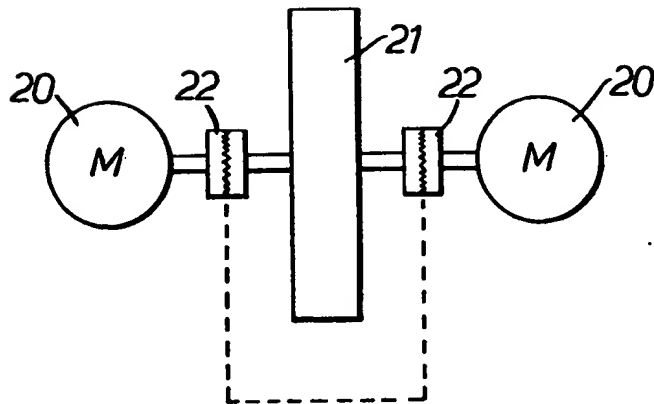


FIG. 4.

## SPECIFICATION

Improvements relating to coin-operated gaming  
or amusement machines

This invention relates to coin-operated or coin-  
5 freed gaming machines or amusement-with-prizes  
machines of the kind in which a series of symbols  
are displayed to view when the machine is  
operated and then stops, and if a line of these  
symbols shows a winning combination on a  
10 combination line, a pay-out mechanism is  
rendered operable or a prize is awarded and  
indicated.

The invention will be described as applied to a  
machine of this kind (generally known as fruit  
15 machines) in which the symbols are displayed on  
rotary drums, reels or discs, but it will be  
understood that it can also be applied to machines  
of this kind in which symbols are displayed on a  
display device on which individual symbols can be  
20 illuminated or otherwise distinguished to  
constitute the equivalent of the combination line.

It has already been proposed that, to add  
interest to such a machine, it should incorporate a  
"nudge" feature. This is described, for example, in  
25 British Patent No. 1292712. This involves  
providing a button or other mechanism associated  
with each drum which, if the feature is made  
available, can be operated when the drum has  
stopped spinning to move the drum on one  
30 symbol space to produce a different combination  
line. Thus if the drums have stopped with one  
symbol missing from a winning combination, and  
that symbol is visible in the next space of the  
appropriate drum, the operation of the nudge  
35 button of that drum brings the symbol into line  
and produces a win.

It is the aim of this invention to provide more  
variety in the "nudge" feature.

According to the present invention there is  
40 provided a coin-operated or coin-freed gaming or  
amusement-with-prizes machine of the kind  
hereinbefore defined wherein at least one drum  
when stationary, or its equivalent, displays at least  
three symbols and this or each such drum or its  
45 equivalent has associated therewith, to provide an  
adjustment feature, an adjustment button or  
mechanism by means of which the respective  
drum or its equivalent, whenever it is stationary  
and the feature is enabled, can be indexed at least  
50 in the direction opposite to that in which the series  
of symbols move during non-feature play, to  
display on the combination line another symbol  
which was previously visible to the player but not  
on the combination line and which thereby  
55 completes or contributes to a winning  
combination.

For a better understanding of the invention  
some embodiments will now be described, by way  
of example, with reference to the accompanying  
60 drawings, in which:

Figure 1 is a diagram representing the display  
windows on a fruit machine, showing associated  
"nudge" buttons,

Figure 2 is a diagram illustrating a reel drive  
65 system with a "nudge" feature,

Figure 3 is a diagram illustrating another reel  
drive system with a "nudge" feature, and

Figure 4 is a diagram illustrating a further reel  
drive system.

70 There are three windows 1, 2, 3 in the display  
of Figure 1, which illustrates the situation where a  
winning combination line of three similar fruits is  
missed by the left-hand drum 1 having rotated one  
symbol space too far and the right-hand drum 3  
75 having stopped one symbol space short, the drum  
rotation causing the symbols to move downwards  
as viewed through the windows. The combination  
line that determines a win is the middle one 4,  
while the symbols in the adjacent lines are  
80 necessarily visible to allow the player to assess  
how to "nudge." If the "nudge" feature is  
available, which either may be at any time when  
the drums are not actually rotating or as  
determined by a random selector unit, then a left-  
85 hand button 5 may be actuated to reverse its drum  
one space and the right-hand button 7 to bring its  
drum to one space. Each button 5, 6 and 7 is in  
the form of a rocker which when pressed at the  
upper end marked 'R' reverses the drum, and  
90 when pressed at the lower end moves the drum  
forward. They are biased to the neutral position.  
Alternatively, two separate buttons may be  
provided.

It is emphasised that this feature may be  
95 available not only after the drums have stopped  
rotating but immediately upon entry of a token or  
coin to enable the machine for a play. Provision  
may be made for cancelling the availability of the  
feature after one "nudge" from any one drum;  
100 after one nudge from each of the drums, or after a  
specified larger number of nudges on one or all of  
the drums. If more than one nudge is allowed on  
any one button, means may be provided for  
preventing a player nudging forwards and then  
105 backwards or vice-versa on any of the drums. If  
the nudge feature is employed before the drums  
spin, that may complete the game, i.e., the drums  
will not spin at all. However, it is possible to  
provide for spinning after "nudging," and even  
110 further nudging after that, to offer the chance of  
more than one prize for one play.

In another version there may be a separate  
selection feature whereby the player can choose  
whether to nudge forwards or backwards. The  
115 control for this may, for example, be two further  
buttons marked respectively "Forwards" and  
"Reverse" and whichever one is pressed when the  
nudge feature is available determines the "nudge"  
direction for all the drums for the rest of that play.  
120 The nudge buttons themselves need not then be  
doubled for each drum, or be in the form of  
rockers.

Referring to Figure 2, this feature may readily  
be applied to a reel drive system employing a  
stepping motor 8. Such a system is described in  
125 our co-pending Application No. 25287/78.

Here, the reel 9 steps forward as dictated by  
the stepping motor 8, each step, or each integral

number of steps, corresponding to the indexing of one symbol space forward. The stepping motor is of course capable of reverse movement and is governed by a pulse generator 10, the pulses corresponding to the steps. The position of the drum, and hence the symbol displayed, can be derived from the pulses rather than from the reel itself, and this is indicated by unit 11. However, other methods (and there are several well known ones) can be used.

The "nudge" feature simply entails providing means 12 which generate pulses upon actuation of the "nudge" button, and these are applied to the forward and reverse input as determined by which, or the manner in which, the button is pressed. In order not to disturb the operation of the stepping motor 8 while it is rotating the drum during a normal spin, the "nudge" pulse circuit 12 will be disabled through line 13 while the pulses are being supplied from the generator 10. When nudging, the pulses from circuit 12 are also applied to a shift register or other means in unit 11, by which the drum position is determined, and so account is immediately and automatically taken of every nudge movement.

There is not much point in having the option of spinning the drums randomly in reverse rather than forwards, but this could be done by making provision for the pulses from generator 10 to be switched to the reverse input of the stepping motor, either at the choice of the player or randomly selected before the play.

Figure 3 shows a more conventional arrangement where the drum 14 is driven by a motor 15 through a clutch 16. The nudging is provided by two indexing solenoids 17 which are selectively operable when the clutch is disengaged, one being for forward and the other for reverse nudging. They co-operate with an annular array of projections 18 from the side of the drum. The detection of the drum position is here carried out by an independent reading head 19.

An alternative to Figure 3 is to have two motors driving in opposite directions, as shown in Figure 4, being connected to drum 21 through clutches 22 which are coupled so that only one can engage at a time. One of the motors provides the ordinary drum spin as well as forward nudging; the other normally provides just reverse nudging.

Although it is generally intended that nudging should be possible in either direction, within limitations, a machine where nudging is only possible in the reverse direction to the normal spin

of the drums is proposed as a simplified version.

## CLAIMS

1. A coin-operated or coin-freed gaming or amusement-with-prizes machine of the kind hereinbefore defined wherein at least one drum when stationary, or its equivalent, displays at least three symbols and this or each such drum or its equivalent has associated therewith, to provide an adjustment feature, an adjustment button or mechanism by means of which the respective drum or its equivalent, whenever it is stationary and the feature is enabled, can be indexed at least in the direction opposite to that in which the series of symbols move during non-feature play, to display on the combination line another symbol which was previously visible to the player but not on the combination line and which thereby completes or contributes to a winning combination.

2. A machine as claimed in claim 1, wherein the feature is disabled after a pre-determined number of indexing movements of one or more of the drums or their equivalents.

3. A machine as claimed in claim 1 or 2, wherein the feature, if available, terminates a play of the machine.

4. A machine as claimed in claim 1 or 2, wherein the feature, if available, commences a play of the machine.

5. A machine as claimed in claim 3 or 4, wherein the feature, if available, constitutes a play of the machine.

6. A machine as claimed in any preceding claim, wherein indexing is possible in either direction.

7. A machine as claimed in claim 6, wherein means are provided for preventing indexing in one direction after indexing in the other, and vice versa, during a single play of the machine.

8. A machine as claimed in claim 6 or 7, wherein each drum or its equivalent is individually selectable to be indexed in one or other direction.

9. A machine as claimed in claim 6 or 7, wherein means are provided for collectively selecting whether the drums or their equivalents can be indexed in one or other direction.

10. A machine as claimed in claim 9, wherein the drums or their equivalents are individually indexable subsequent to the selection of direction.

11. A coin-operated or coin-freed gaming or amusement-with-prizes machine substantially as hereinbefore described with reference to the accompanying drawings.